

Flow-Angle and Airspeed Sensor System (FASS) Using Flush-Mounted Hot-Films, Phase II

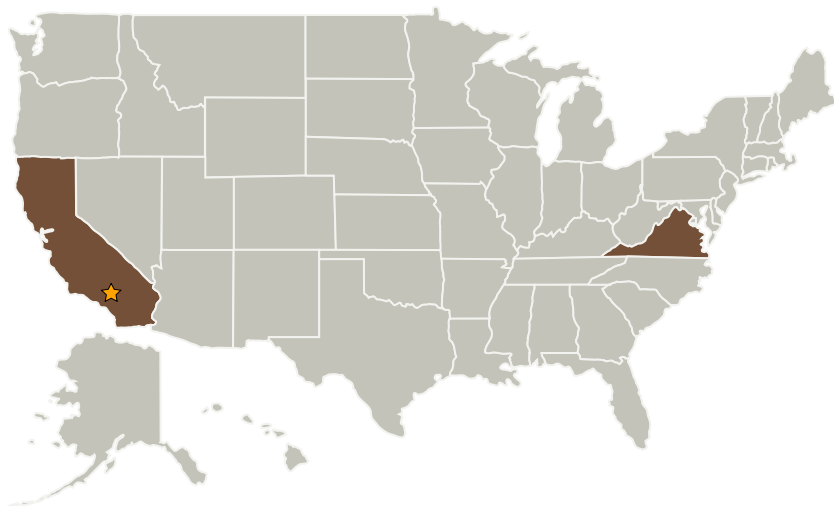
Completed Technology Project (2007 - 2008)



Project Introduction

Micron-thin surface hot-film gages are used to develop flow-angle and airspeed sensor system (FASS). Unlike Pitot-static and other pressure-based devices, which experience serious limitations in accuracy, pneumatic lags, and frequency response in thin upper atmospheres and at low speeds, FASS will measure airspeed all the way to zero knots and flow angularity to a fraction of a degree with practically zero-lag. It will perform equally well at sea level as well at high altitudes and even in the thin Martian atmosphere with relative immunity to EMI and RFI. Calibrated hot-film gages could also be used to simultaneously obtain total temperature. FASS addresses important flight-operation and flight research problems that have crucial impact on vehicle performance, stability & control, structural loads, and pilot action. FASS will permit direct integration with aircraft avionics systems including conventional instruments used for pressure, temperature, and density measurements. Hot-film gages are coated to withstand harsh environment and for protection from rain and ice. FASS is developed both as a stand-alone probe and as an embedded, non-intrusive system. Applications include aerospace and ground vehicles, submarines, ships, and measurements in the atmosphere, ocean, and in internal flows.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Armstrong Flight Research Center (AFRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Armstrong Flight Research Center(AFRC)	Lead Organization	NASA Center	Edwards, California
Tao of Systems Integration, Inc.	Supporting Organization	Industry Minority-Owned Business, Small Disadvantaged Business (SDB)	Hampton, Virginia

Primary U.S. Work Locations

California	Virginia
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Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX15 Flight Vehicle Systems
 - └ TX15.1 Aerosciences
 - └ TX15.1.1 Aerodynamics